



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/597,113	06/20/2000	Roy C. Challberg	24-AT-6005	5948

7590

09/18/2002

John S Beulick  
Armstrong Teasdale LLP  
Suite 2600  
One Metropolitan Square  
St Louis, MO 63102-2740

EXAMINER

KEITH, JACK W

ART UNIT

PAPER NUMBER

3641

DATE MAILED: 09/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/597,113

Applicant(s)  
Challberg et al

Examiner  
Jack Keith

Art Unit  
3641



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Aug 2, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-6, 8-10, 12, and 13 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 8-10, 12, and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

Art Unit: 3641

## **DETAILED ACTION**

### ***Request for Continued Examination***

1. The request filed on 8/2/2002 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/597,113 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Response to Arguments***

2. Applicant's arguments filed 8/2/2002 have been fully considered.

The 102 and 103 rejection utilizing Sakurai et al (JP 04-301596) is withdrawn.

Regarding the 102 and 103 rejections utilizing Hiraiwa (JP 06-138275) and Kusuno (JP 04-296693) the examiner would first like raise an issue to the claim language of claim 10, line 6 wherein a "plurality of large fuel bundles ...". The term "large" lacks antecedent basis; a 112, 2nd paragraph rejections follows below. Additionally the term "large fuel bundles" is directed to a K-lattice configuration, which is a non-elected species (see Paper no. 7). It appears; however, that the term "large" was inadvertently added to claim 10. The claim has been examined as such. To avoid the 112, 2nd rejection cancellation of the term "large" is required.

At the outset a full translation of Hiraiwa and Kusuno has been ordered. The 102 and 103 rejections utilizing Hiraiwa and Kusuno (see Paper no. 11) are herein incorporated by reference.

Art Unit: 3641

Applicant argues that neither Hiraiwa or Kusuno disclose or suggest a fuel cell that includes a large control rod having four control rod blades extending radially from a central portion and arranged at right angles to each other with the blades defining four quadrants of fuel cells wherein each quadrant consists of only four fuel bundles.

The examiner disagrees. Applicant has not defined his structure over that of the prior art. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Here applicant is arguing the size of the blade length of the control rod; while the specification may provide the actual size of the control rod blades in relation to conventional fuel bundles associated with F-lattice configuration these features are not recited in the rejected claim(s). Accordingly, the blade lengths of either Hiraiwa or Kusuno meet applicant's claimed inventive concept.

Additionally applicant argues that the fuel bundles of either Hiraiwa or Kusuno are mini-bundles and not those of conventional size. Again as set forth above, while the specification may set forth the size of the fuel bundles in a F-lattice configuration as being conventional applicant is not claiming the size of the fuel bundle as being conventional. Accordingly, either fuel bundle of Hiraiwa or Kusuno reads on applicant's claimed invention.

With regard to the term "conventional fuel bundles" such is a relative term which renders the fuel bundle indefinite. Conventional applies to standards used within the industry today, but does not apply to past or future standards in the industry. Accordingly, the addition of the term

Art Unit: 3641

“conventional” to the rejected claims would not define over the prior art. In this context the fuel bundles of either Hiraiwa or Kusuno are conventional.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "large" in line 5. There is insufficient antecedent basis for this limitation in the claim. Accordingly, the fuel bundle is indefinite.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3641

6. Claims 1, 4-6, 8-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Hiraiwa (JP 06-138275) or Kusuno (JP 04-296693) in view of Taleyarkhan (4,649,021).

As set forth in Paper no. 11 either Hiraiwa or Kusuno discloses applicant's inventive concept; however, if not apparent that either Hiraiwa or Kusuno discloses a conventional fuel assembly then Taleyarkhan teaches the use of mini-fuel bundles in the nuclear art (See figure 1 and columns 5-6, lines 59-2). Note that the mini-fuel bundle is provides with its own upper and lower tie plate and that each mini-fuel bundle is disclosed as separate from the adjacent mini-fuel bundle.

Accordingly, as set forth in 102 rejection of Paper no. 11 either Hiraiwa or Kusuno discloses applicant's inventive concept. Taleyarkhan teaches that mini-fuel bundles are well known within the nuclear fuel assembly art. Accordingly, either Hiraiwa or Kusuno in view of Taleyarkhan sets forth an operational nuclear fuel assembly having mini-fuel bundles according to applicant's claims.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Keith whose telephone number is (703) 306-5752. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00.

Art Unit: 3641

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

A handwritten signature in black ink, appearing to be 'Jack Keith', with a long horizontal stroke extending to the right.

Jack Keith  
Examiner,  
Art Unit 3641

jwk

September 16, 2002